Medical problems of wind players: a musician's perspective[1]

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The medical problems that affect brass wind instrument players are presented by a musician. The dynamics and proper techniques of playing are explained. Various disorders that are especially troublesome to wind players (including asthma, colds, palate closure, dental malocclusion, and stage fright) and their treatment are discussed.

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All of us in music have been heartened at the recently increased interest of the medical profession in the physical, medical, and psychological problems of the serious musician. Having been a French horn player for more than 50 years, I have worked in close association with several hundred virtuoso brass players during that time. I feel confident that I speak for all of them in saying that this new interest in our unique problems is a great source of gratitude, relief, and confident hope that some of our often devastating problems can now be solved or at least lessened by the many keen medical minds that are at last confronting these unusual and (to us) critical problems.

As the physical problems of string players, percussionists, and pianists differ greatly from those of singers, brass, and woodwind players, I will confine my remarks to the problems of brass players. Since I am a hornist, I will concentrate on that instrument. Much of the technique of brass playing is similar for all brass instruments; therefore, most of my

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remarks concerning the horn are applicable to the other brasses, notwithstanding the subtle differences of which we brass players are aware.

Brass playing encompasses at least four distinct categories of functions and techniques. One of the most important of these is the formation of the embouchure—the adjustment of the mouth and facial muscles and the positioning of the tongue and mandible so that the lips will vibrate when blown through. The breathing apparatus—the diaphragm, the rib cage, the intercostal muscles, and the glottis—must be correctly coordinated to work in conjunction with and maintain efficient vibration of the lips.

The third factor in brass playing is the ability to hold the instrument in a comfortable yet steady playing position. This requires strong but relaxed skeletal muscles, particularly of the arms, shoulders, fingers, and even the legs of those players who stand while playing.

The fourth aspect of playing is the psychological one of combating stage fright, which is most often exhibited in trembling arms and legs, dry mouth, tachycardia, and mental disorientation. All too many potentially successful artists have had to give up the music profession because of the inability to cope with this stress.

The problems and possible aids in each of these categories, particularly as to how the musicians' problems differ from those of nonmusicians are discussed.

Forming the embouchure is a most complex and subtle skill. The slightest excess tension in the buccinators, too much contraction of the orbicularis oris, or too much forward thrust or exaggerated recession of the jaw can prevent a performer from playing well. Seemingly, all brass players experience embouchure failure at times. Often, the only solution is trial-and-error practicing and advice from a good brass teacher. Sometimes, however, the problem can be approached medically, for example, when the muscles of the face are not working symetrically. Occasionally one sees a struggling player whose chin is bunched upward, a common but deleterious habit. Often the player is aware of these harmful habits, but seems physically unable to correct them. In these cases, a knowledgeable physical therapist can suggest exercises for the facial and lip muscles that will strengthen weak muscles and/or retrain the recalcitrant muscles to function correctly.

Since the teeth serve as the foundation for the embouchure, a great deal can be done to improve playing by judicious dental work and orthodontics when necessary. The pressure of brass playing is lateral, with the mouthpiece pushing directly back on the incisors. This pressure can be intense. The higher notes require more pressure than do the lower ones. As fatigue sets in, more and more pressure is also needed. Therefore, a high note being played by a tiring performer can require an enormous amount of pressure. This can amount to 5 or 10 pounds of pressure concentrated on a mouthpiece that has an area of only the size of a nickel or dime. After such a session, one occasionally finds the front teeth slightly loose or tiny cuts on the inside of the lips where they have been pressed into the valleys between the teeth or onto a sharp corner or a protruding tooth. The dentist can often smooth down such a sharp corner or protruding tooth. He can also, on rare occasions, make a thin plastic prosthesis that can be slipped over the front teeth and fill in the offending valleys. Extreme cases of malformation can sometimes be corrected by orthodontia, but the resulting braces can often put a stop to all playing for considerable lengths of time, something a professional player can ill afford. In fact, if the tooth problem is too extensive, one might have to consider the study of a different category of instrument. The art of capping teeth has helped many brass players, but the newer technique of bonding with acrylic resin can be done more precisely and is probably stronger. One of the best investments a brass player can make is to have a plaster cast made of the upper and lower teeth. Then, if for some reason, repair work must be done in the future, an accurate duplication of the original teeth can be made. Keeping this contour of the teeth can be very critical. Indeed, even the players who seek improvement by dental changes must give careful consideration to any alterations, as the result might be detrimental instead of beneficial. A good philosophy might be: if performance is going well, do not "rock the boat." If, on the other hand, the playing is substandard, nothing will be lost by carefully thought out dental changes.

Since the lowering and raising and forward and backward motion of the jaw is very much involved in brass playing, various malocclusions are often a hindrance to performance. A skilled

dentist can often alter the "bite" by judicious grinding, thereby improving performance.

The function of the tongue as a part of the embouchure is to articulate the transition from one note to the next either by "slurring" the notes together, which often involves arching or lowering the back of the tongue, arching for an upward slur and lowering for a downward slur, or by separating the notes from each other by the motion of the tip of the tongue forming a whispered "too" or "doo" articulation. At times, this tonguing motion, which musicians refer to as the "attack," must be repeated with extreme rapidity. Most players do this quite naturally and easily, but some have a slow tongue. These players are acutely aware of this deficiency. Most try to improve the situation by diligent practice of suitable exercises, which is undoubtedly the proper approach. Some players, few in number, fortunately, attempt to have the problem solved surgically. Usually this consists of cutting the frenulum on the underside of the tongue. Perhaps this has helped some players, but I have never met any brass player who has benefited from it. On the contrary, I have seen a few whose careers have been literally clipped simultaneously with the clipping of the frenulum.

Breathing is to the wind player what bowing is to the string player: the vibration activator. Even the finest embouchure cannot function successfully without the proper use of the air column. Therefore, wind players can be seriously hindered by the many pulmonary problems that might only slightly incapacitate the nonplayer. A bad cold not only decreases the vital capacity, but can swell the mucous membranes of the mouth, the soft palate, tongue, and nasal passages, all of which make the playing of a brass instrument more difficult. Playing a long passage while the nose is running is not conducive to a lovely musical interpretation. Obviously, cold prevention is a most desirable goal for the wind player.

Asthma can be a devastating problem for the wind player. A surprising number of wind players have this disease. Although some players acquired asthma after becoming musicians, a number, including myself, had taken up wind instrument playing in the hope that such an activity would improve the asthmatic condition. The specific drug of choice for asthma for many years was epinephrine. Relief was instant and dramatic, but the resultant uncontrollable shaking and trembling was as bad for the performance, if not worse, than the restricted breathing. Today, there are medications for the asthmatic that avoid the side effect of uncontrolled shuddering. One of these, albuterol, can be obtained in aerosol inhalers that even give out measured doses. These do an admirable job of relieving the asthma attack while keeping trembling to a minimum. There are now also sustained-action medicines, which when taken orally, can give long periods of relief to the performer facing a long concert.

Many wind players who have no medical breathing problem have trouble breathing in an efficient manner. This is often due to not knowing how to inhale copious amounts of air rapidly. A physical therapist can be very helpful in demonstrating how rib-cage expansion by proper use of the intercostal muscles combined with a forceful downward movement of the diaphragm and a wide-open glottis can almost instantly and silently fill the lungs sufficiently for any musical passage one will encounter.

Two rather rare breathing problems, as yet unsolved, that the brass player sometimes faces might well enlist the thinking of the medical profession. Most brass players agree that the glottis acts as a valve in regulating the quantities of air exhaled for the various musical dynamics, i.e., loud or soft. The problem for a few players is a moaning or groaning sound that is emitted while blowing the instrument. This is undoubtedly due to the inadvertent activating of the vocal cords while exhaling. Although this is understood by the player involved, just understanding the problem does not solve it, and some ideas on how to correct this insidious habit are sorely needed. The other problem is the inability of some players to hermetically close the soft palate while playing, thus allowing air to escape through the nose. This, even when the hermetic seal is almost complete, produces a snorting sound from the nostrils as well as causing a fluctuating air pressure. When the soft palate will not seal at all, there is no possibility of playing the instrument. Realistic assessment of the condition or perhaps even surgical correction is needed by those who have this problem.

Holding the instrument in a playing position may seem a simple and elementary part of our technique, but actually it is an important and demanding aspect of good playing. Holding a

5½-pound instrument at an exact angle to the lips for protracted lengths of time without trembling is an absolute necessity for smooth, controlled playing. The very size of the instrument requires the arms to be held at a partially horizontal angle, which creates a leveraging effect, exaggerating the actual weight of the instrument. Every note on the instrument requires a different pressure on the lips, which is achieved by the interplay between the biceps and triceps of the arm or arms holding the instrument. These differing pressures are very subtle between adjoining notes of the scale, but can easily be observed in a player performing rapid octave jumps or other wide intervals. Much of the accuracy of the brass player depends on the very subtle kinesthetic feeling in these arm muscles. The biceps, triceps, and embouchure must adjust quickly, accurately, and in perfect synchronization, but they must also instantly "freeze" when holding a note. So it is essential to successful performance to have healthy, supple, and strong arm and shoulder muscles. Physical exercise is, therefore, not only desirable, but should be considered a necessity by the serious performer. Swimming, weight lifting, stretching exercises, and calisthenics are all useful in maintaining peak performance ability on a brass instrument. As one learns more of what is involved in wind-instrument playing, it becomes apparent that the entire body is involved. Like the weak link in a chain, weakness in any one aspect of playing will affect the entire outcome.

The last consideration in the problems of brass players is that giant ogre, stage fright. Surely no sensitive musician is immune to it, although the active successful performer has turned stage fright into an asset by conquering it to the point that it is no longer debilitating, but actually adds just the right amount of eagerness and excitement that contributes so much to a vital performance.

There are now medications that alleviate some of this stage fright. Perhaps the best known is the beta blocker, propranolol (Inderal).[1-3] There have been highly favorable reports from some who have used it. I believe that on occasion it can be beneficial to the brass player, under the supervision of a physician. However, I believe (and nearly all of my professional colleagues agree with me) that the habitual use of beta blockers is unwarranted. The major symphony orchestra player will play an average of five or six concerts a week for a career lasting several decades. These repeated performance experiences are the best cure for stage fright. The burst of adrenalin that comes when one faces the unknown, or fear, or danger is gradually reduced by repeated appearances on the stage so that what was once debilitating stage fright eventually becomes a keyed-up positive attitude.

Certainly, having the confidence that one "can do it" contributes to poise on the stage. Confidence is best achieved by repetitive practice, which not only perfects the technique needed for the passage, but also provides another benefit: it "programs the computer." I believe that the human mind works as a kind of computer, which functions consciously or subconsciously. During the repetitious practice that I advocate, this computer is faithfully "tallying-up" the bad versus the good run-throughs. When the performer finally goes on stage for the actual performance, his "computer" will remind him subconsciously that the odds are in favor of a perfect performance—"ninety-nine 'good ones' to only four 'flawed ones,' so relax." Or the computer might say, "Oh, oh, here comes that difficult passage you miss about one time in three! Maybe you can do it, but you had better tighten up!" The knowledge that you "can do it" combined with this computerlike mechanism as well as the practice that reinforce these are powerful forces for counteracting stage fright.

There are many ways to rationalize the importance or the consequence of an impending performance which, in putting it into perspective with the cosmos and eternity, will minimize its overpowering importance and thereby also minimize the nervousness associated with portentious events, since this is *not* one. The foregoing may seem to be a somewhat negative approach to the control of nervousness, but it actually does help. Just the knowledge that this performance is not associated with doomsday, nor is it even important in the overall scheme of the universe, is often a calming reflection. These several suggestions on combating stage fright or nervousness are beneficial, and when coming from a respected physician, gain authority and lend further credence to their efficacy.

For us musicians who have in the past faced our medical/musical problems in lonely frustration, anxiety, fear, and even terror, what a bless-

ing it is to know that we now have available highly knowledgeable friends who can help us, through the use of medicine, therapy, surgery, psychiatry, and psychology and, best of all, through sympathy and understanding.

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References

1. Ryo UY, Townley RG. Comparison of respiratory and cardiovascular effects of isoproterenol, propranolol and practolol in asthmatic and normal subjects. J Allergy Clin Immunol 1976; **57:**12–24.
2. McNeill RS, Ingram CG. Effect of propranolol on ventilatory function. Am J Cardiol 1966; **18:**473–475.
3. Lundin AP, Pilkington B, Delano BG, Friedman EA. Response to inhaled β-agonist in a patient receiving β-adrenergic blockers. Arch Intern Med 1984; **144:**1882–1883.